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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/569,483	11/14/2007	Kazuki Nishizawa	2006-0238A	3072

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EXAMINER	
STELLING, LUCAS A	

ART UNIT	PAPER NUMBER
1797	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/569,483	NISHIZAWA ET AL.	
	Examiner	Art Unit	
	Lucas Stelling	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *3-16-09, 1-15-09 and 2-24-06*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4,5,10,15,16,22-26,33-35,54-56 and 61* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4,5,10,15,16,22-26,33-35,54-56 and 61* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 February 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *(2) 3-16-09 and 2-24-06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group 2, claims 4, 5, 10, 15, 16, 22-26, 33-35, 54-56 and 61 in the reply filed on 11-19-08 is acknowledged.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 25 and 55 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In line 5 of claims 25 and 55, applicant uses "said tank," but it is unclear whether this refers to the "ballast water tank" or the "storing tank." For purposes of examination it will be interpreted that "said tank" refers to -- said storing tank --.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 4, 10, 15, 22 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,500,345 to Constantine et al. ("Constantine") in view of U.S. Patent Application Publication No. 2001/0010296 to Hirota et al. ("Hirota").

8. As to claims 4, 10, 15, 22 and 33, Constantine teaches applying a microbe separation treatment of centrifugal separation **(Constantine 16),** and applying chlorination **(Constantine 50 in Fig2 and col. 10 lines 25-30)**; after which, the water is transferred to a ballast water tank **(Constantine 30)** and it is then discharged **(See Fig. 2 water exiting tank 30 is discharged)**.

9. Constantine is different from claims 4, 10, 15, 22 and 33 in that Constantine contemplates injecting chlorine through a metering device **(Constantine col. 7 lines 27-33)**, but does not teach producing the chlorine treating agent from the water. First, it

is noted that sea water contains dissolved metal chloride salts. Hirota teaches using an electrolytic cell to produce hypochlorous acid and the hypochlorite ion from water containing chlorides, which is then used to disinfect the water **(Hirota [0010] - [0017])**. Hirota teaches that the use of an electrolytic cell obviates the need for providing chlorinated lime or hypochlorite **(Hirota [0018])**. Furthermore, Hirota contemplates using the described system for a variety of water treatment applications **(Hirota [0001])**, and Hirota is generally directed to the problem solving area of preventing microbial growth in water **([0019])**. Therefore, it would have been obvious to a person of ordinary skill in the art to produce the chlorine treating agent in situ in Constantine in order to obviate the need for storing and administering a chlorine treating agent.

10. Claims 5, 16, 24, and 35 rejected under 35 U.S.C. 103(a) as being unpatentable over Constantine and Hirota as applied to claims 4, 15, 22, and 33 above, and further in view of JP 2003-200156 to Kino ("Kino").

11. As to claims 5, 16, 24, and 35 Constantine and Hirota teach the methods and apparatus of 4, 15, 22, and 33 but do not teach the use additional use of a mechanical damaging treatment unit. Kino teaches the use of a slit plate for destroying microorganisms **(Kino See, e.g., Figs. 1 and 2)**. Kino teaches that the use of the slit plate reduces the need for chemical treatment and an increased throughput for effectively treating the water **(Kino [0003] and [0004])**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to further provide a

mechanical damaging plate in the system of Constantine and Hirota in order to reduce the need for chemical treatment and to increase the throughput of the treatment system.

12. Claims 22, 23, 25, 26, 33, 34, 55 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Constantine in view of Hirota and U.S. Patent No. 6,171,508 to Browning, Jr. ("Browning").

13. As to claims 22, 23, 26, 33, 34, and 56 Constantine teaches applying a microbe separation treatment of centrifugal separation **(Constantine 16),** and applying chlorination **(Constantine 50 in Fig2 and col. 10 lines 25-30)**; after which, the water is transferred to a ballast water tank **(Constantine 30)** and it is then discharged **(See Fig. 2 water exiting tank 30 is discharged)**.

14. Constantine is different from claims 22, 23, 26, 33, 34, and 56 in that Constantine contemplates injecting chlorine through a metering device **(Constantine col. 7 lines 27-33)**, but does not teach producing the chlorine treating agent from the water and Constantine contemplates drawing the water to be treated from the raw open water, but does not appear to contemplate recirculating the water from the ballast tank.

15. As to producing the chlorine electrolytically, first, it is noted that sea water contains dissolved metal chloride salts. Hirota teaches using an electrolytic cell to produce hypochlorous acid and the hypochlorite ion from water containing chlorides, which is then used to disinfect the water **(Hirota [0010] - [0017])**. Hirota teaches that the use of an electrolytic cell obviates the need for providing chlorinated lime or

hypochlorite **(Hirota [0018])**. Furthermore, Hirota contemplates using the described system for a variety of water treatment applications **(Hirota [0001])**, and Hirota is generally directed to the problem solving area of preventing microbial growth in water **([0019])**. Therefore, it would have been obvious to a person of ordinary skill in the art to produce the chlorine treating agent in situ in Constantine in order to obviate the need for storing and administering a chlorine treating agent.

16. As to recirculating the water from the ballast tank, Browning teaches a treatment system for ballast water in which the water from the hold is treated in a recirculating line **(See Browning Fig. 3)**. Browning further teaches that treating the water held in the tank in a recirculating manner allows for sterilizing the ballast water without creating an unstable condition in the ship **(Browning col. 6 lines 50-68)**. Therefore, it would have been obvious to a person of ordinary skill in the art to carry out the treatment system of Constantine and Hirota in a recirculating fashion in order to prevent instability in the ship.

17. As to claims 25, and 55, Constantine in view of Hirota and Browning teach the methods of claims 22 and 23. It is further noted that not all navigable waters (such as lakes and rivers) contain substantial amounts of dissolved salts. Hirota teaches transferring a portion of the water to be treated to a tank in order to generate the desired electrolytic solution **(See Fig. 6 and 30a)**. Hirota teaches that providing the tank allows for generation of an electrolytic solution which is used to generate the chlorine treating agent **([0106]-[0108])**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to provide a storing tank in the method of

Constantine, Hirota and Browning in order to adjust the level of salt in the water to be electrolyzed.

18. Further, with respect to claims 25 and 55, the order of performing the electrolyzing and separation steps is obvious in the absence of unexpected results. See MPEP 2144.04(IV)(C).

19. Claims 24, 35, 54, and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Constantine, Hirota and Browning as applied to claims 22, 23, 33, and 34 above, and further in view of Kino.

20. As to claims 24, 35, 54, and 61Constantine, Hirota, and Browning teach the methods and apparatus of 22, 23, 33, and 34, but do not teach the use additional use of a mechanical damaging treatment unit. Kino teaches the use of a slit plate for destroying microorganisms **(Kino See, e.g., Figs. 1 and 2)**. Kino teaches that the use of the slit plate reduces the need for chemical treatment and an increased throughput for effectively treating the water **(Kino [0003] and [0004])**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to further provide a mechanical damaging plate in the system of Constantine and Hirota in order to reduce the need for chemical treatment and to increase the throughput of the treatment system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucas Stelling whose telephone number is (571)270-

3725. The examiner can normally be reached on Monday through Thursday 12:00PM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

las 4-6-09

/Matthew O Savage/
Primary Examiner, Art Unit 1797